REMARKS

This amendment is responsive to the first Office Action dated December 22, 2003. Applicants respectfully request reconsideration and allowance of claims 1, 3, 4, 6, 9-11, and 14-28 as set forth herein.

The Current Status Of The Claims

Claims 1-3, 5, 7-15, 17, and 18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Roller (U.S. 6,414,801, hereinafter "Roller").

Claims 19-26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Sommers et al. (U.S. publ. app. 2003/0117797 A1, hereinafter "Sommers").

Claims 4, 6, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Roller.

Claims 2 and 12-13 are also rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

The Indefiniteness Rejections of Claims 2 and 12-13 are Addressed

Claims 2, 12, and 13 are canceled herein, thus obviating the indefiniteness rejections of the Office Action.

Claims 1, 3, 4, 6, and 9-11 Patentably Distinguish Over The Cited References

Claim 1 has been amended to incorporate subject matter of canceled dependent claims 5, 7, and 8 in a form that more particularly points out certain patentable aspects. The amended combination is supported in the specification at least by ¶¶[0039]-[0042] and by FIGURE 3.

Claim 1 as set forth herein calls for, among other elements, a lamp with a plurality of LEDs of first, second, and third different colors, and an electronics module receiving input electrical power and a lighting control signal. The electronics module includes electrical conditioning circuitry for selectively electrically coupling the input electrical power to the output coupler based on the lighting control signal to selectively power to the LEDs of the first second and third colors to produce light of a color selected by the lighting control signal.

The Office Action notes at paragraph 8 (pp. 7-8) that lighting control protocols, such as DMX, CAN, and the like, are known in the art. Although the Office Action cites no references to such protocols, Applicants readily admit that such lighting control protocols are known: for example, the DMX-512 lighting control protocol is discussed in the application at ¶[0006] of the Background of the Invention.

These known lighting control systems employ a plurality of incandescent lamps of different colors. The lighting control signal selectively operates these incandescent lamps to blend light from a plurality of lamps to produce a selected color. Such complex lighting systems are sometimes used in mobile settings such as by a touring musical group or other live performance group. The multiple lamps complicate setup of the lighting system, as they must be properly positioned to blend the light together, and the control signal routed to all the lamps.

In contrast, claim 1 refers to a *single* lamp which provides illumination of a light color selected by the lighting control signal. The lamp of claim 1 eliminates the need to physically and logically coordinate lamps of different colors to achieve the desired blending of light.

Roller does not disclose or fairly suggest a lamp as called for in claim 1. Roller discloses a simple intensity control of a headlight. While Roller suggests that the LEDs can be of any color (col. 5 lines 6-9), Roller does not disclose or fairly suggest a lamp producing a color light output selected by a received lighting control signal as called for in claim 1.

Claim 11 calls for the output coupler of the electronics module to be adapted to thermally communicate with the heat sink of the optical module. The comments below pertaining to independent claim 14 apply to claim 11 as well.

Accordingly, it is submitted that claims 1, 3, 4, 6, and 9-11 patentably distinguish over the cited references. Applicants therefore ask for allowance of claims 1, 3, 4, 6, and 9-11.

Claims 14-18 Patentably Distinguish Over The Cited References

Claim 14 as set forth herein calls for a light emitting apparatus comprising a heat sink having a first and second opposite sides with a conduit therebetween, a plurality of light emitting diodes disposed at the first side and an electronic module disposed on the second side. The light emitting diodes and the electronic module are both in thermal communication with the heat sink to provide heat sinking of both.

Roller does not disclose the arrangement called out in claim 14. Roller shows two heat sinks: a first heat sink 30 heat sinking LEDs 41, and a second heat sink 70 heat sinking LEDs 81. Control components 21 are wired to a printed circuit board 20, and are arranged on the opposite side of the heat sink 30.

However, there is no disclosure or fair suggestion in Roller that the control components 21 be in thermal communication with the heat sink 30 to heat sink the control components 21. The control components 21 are not shown at all in the assembled lamp of Figs. 5 and 6. The control components 21 are said to be connected to a printed circuit board 20 and to actuation devices in the interior of the vehicle by means of wires (col. 8 lines 31-35). There is no disclosure or fair suggestion in Roller of any thermal communication between the control components 21 and the heat sink 30, as would be necessary to provide heat sinking.

Claim 14, in contrast, advantageously calls for employing the same heat sink for heat sinking both the electronic module and the light emitting diodes. This provides a compact self-contained light emitting apparatus, such as a lamp, that can be installed in an MR fixture or other lighting fixture.

Claim 17 calls for the second side of the heat sink to be adapted to detachably connect with any one of a plurality of electronic modules. For example, while the heat sink 22 is shown in Fig. 1 of the present application as connecting with the electronic module 14, it can also detachably connect with the electronic module 60 of Fig. 2B or with the electronic module 70 of Fig 2C. Roller does not disclose such a modular arrangement.

Claim 18 calls for the heat sink to include a radiating surface disposed between the first and second sides radiating heat away from the heat sink. In illustrated embodiments, this radiating surface includes heat-radiating fins 23 shown in Fig. 1 and discussed at least at ¶[0030], where it is also noted that other heat radiating structures can replace the fins 23.

The radiating surface disposed between the first and second sides allows the heat sink to draw heat from *both* ends to cool *both* the LEDs and the electronic module and to expel that heat through the interposed radiating surface. The heat sink of Roller does not have such an interposed heat radiating surface. This omission in Roller teaches away from using *both* opposing ends of the heat sink 30 for heat sinking *both* the control components 21

and the LEDs 41, since in such a case the heat sink has no apparent thermal outlet.

Accordingly, it is submitted that claims 14-18 as set forth herein patentably distinguish over the cited references. Applicants therefore ask for allowance of claims 14-18.

Claims 19-21 Patentably Distinguish Over The Cited References

Claim 19 as set forth herein calls for a lamp retro-fitting method comprising selecting an LED-based lamp, selecting an electronic module including a connector configured to mate with the lamp fixture electrical receptacle, and mechanically mating the selected LED-based lamp and the selected electronic module to form an LED-based retro-fit unit.

Claim 19 further specifies: (i) the mechanical joining effectuates electrical connection between the lamp and the electronic module; and (ii) the selected electronic module is selected from amongst a plurality of electronics modules having different connectors and identical output couplers.

Claim 19 stands rejected as anticipated by Sommers. The amendments to claim 19 more clearly distinguish the claim over this reference. The method of claim 19 now calls for selecting a base from a plurality of electronics modules having different connectors and identical output couplers. As discussed in the specification at least at ¶¶[0035]-[0036], this enables the LED-based lamp to be independent of the electrical and connector characteristics of any particular power supply.

Accordingly, it is submitted that claims 19-21 as set forth herein patentably distinguish over the cited references. Applicants therefore ask for allowance of claims 19-21.

Claims 22-28 Patentably Distinguish Over The Cited References

Claim 22 as set forth herein calls for a modular lamp system comprising an optics module and a plurality of electronics modules. The optics module includes a plurality of LEDs and a heat sink. Each electronics module includes (i) an output coupler adapted to mate with the heat sink to convey power to the plurality of LEDs via an electrical conduit of the heat sink, and (ii) an electrical power connector for receiving electrical power. The electronics modules each have the same output coupler but different electrical power connectors. Each electronics module houses circuitry converting the electrical power received at its electrical power connector into a common output power delivered to the output coupler to drive the LEDs.

Claim 22 stands rejected as anticipated by Sommers. The amendments to claim 22 more clearly distinguish the claim over this reference by calling for a plurality of electronics modules each including the same output coupler but different electrical power connectors. The common output coupler enables any of the plurality of electronics modules to be connected with the optics module, promoting manufacturability at the production end and, for detachable couplings, user convenience at the user end.

Claim 26 calls for the heat sink to thermally communicate with an installed one of the plurality of electronics modules to heat sink the installed electronics module. The comments pertaining to independent claim 14 apply to claim 26 as well.

New **claim 27** calls for a thermally conductive disk inserted between the heat sink and the installed one of the plurality of electronics modules. As noted in the specification at ¶[0044], such a thermally conductive disk is particularly useful to promote thermal coupling with the heat sink when the output coupler detachably mates with the heat sink.

New **claim 28** calls for output coupler to detachably mate with the heat sink, and for the output coupler to be selected

from a group consisting of: (i) a snap fit, (ii) a twist lock, (iii) a spring-loaded connection, (iv) a connection secured using screws. This new claim is supported in the specification at least at ¶[0036]. Detachable mating of a selected one of a plurality of electronics modules advantageously allows the end user to connect the optics module with any one of a plurality of lamp receptacles corresponding to the different electrical power connectors of the plurality of electronics modules. This allows the user to acquire a single optics module and to install that optics module in a selected one of various electrical receptacles by mating the optics module with a suitable electronics module.

Accordingly, it is submitted that claims 22-28 as set forth herein patentably distinguish over the cited references. Applicants therefore ask for allowance of claims 22-28.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that claims 1, 3, 4, 6, 9-11, and 14-28 as set forth herein are now in condition for allowance. Applicants ask for allowance of claims 1, 3, 4, 6, 9-11, and 14-28 as set forth herein.

Respectfully submitted,

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